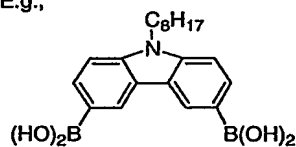


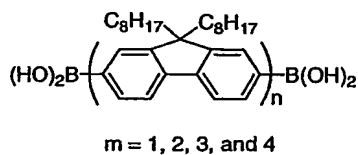
$n = \text{or} > 1$ ;

R = organic or organometallic complex moiety including oligomer and polymer.

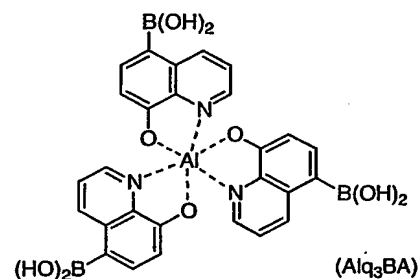
E.g.,



(CzBA)



(FnBA)



(Alq<sub>3</sub>BA)

Fig. 1

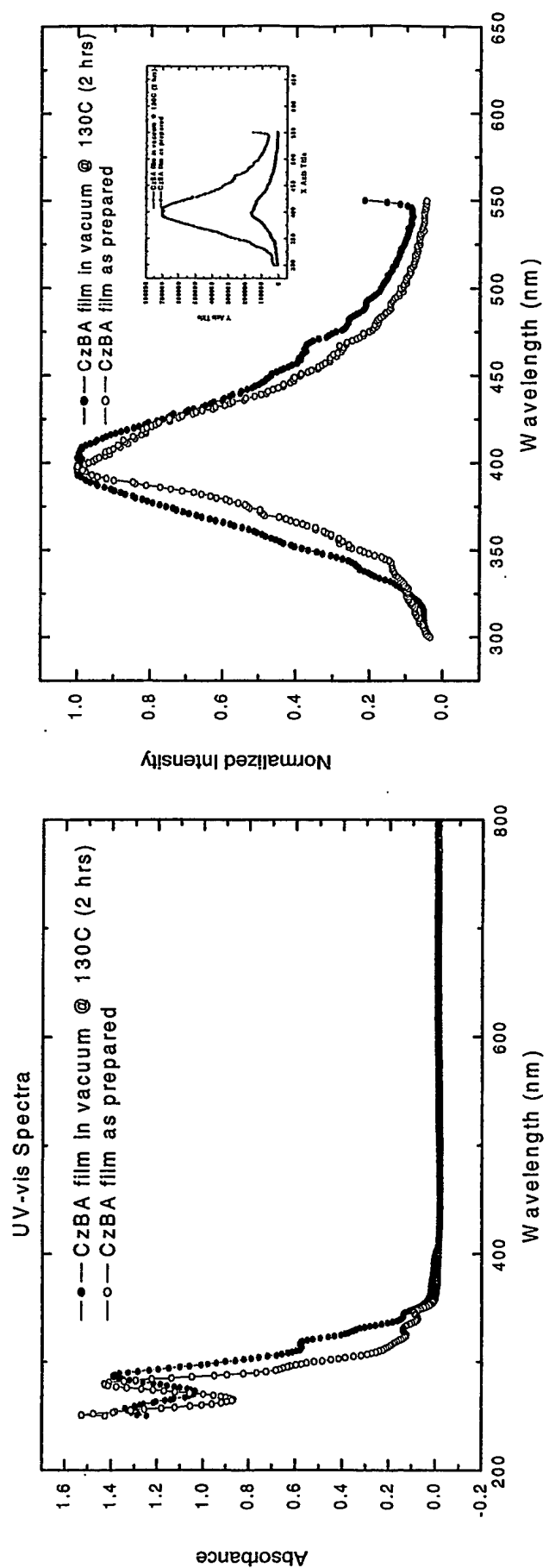


Fig. 2

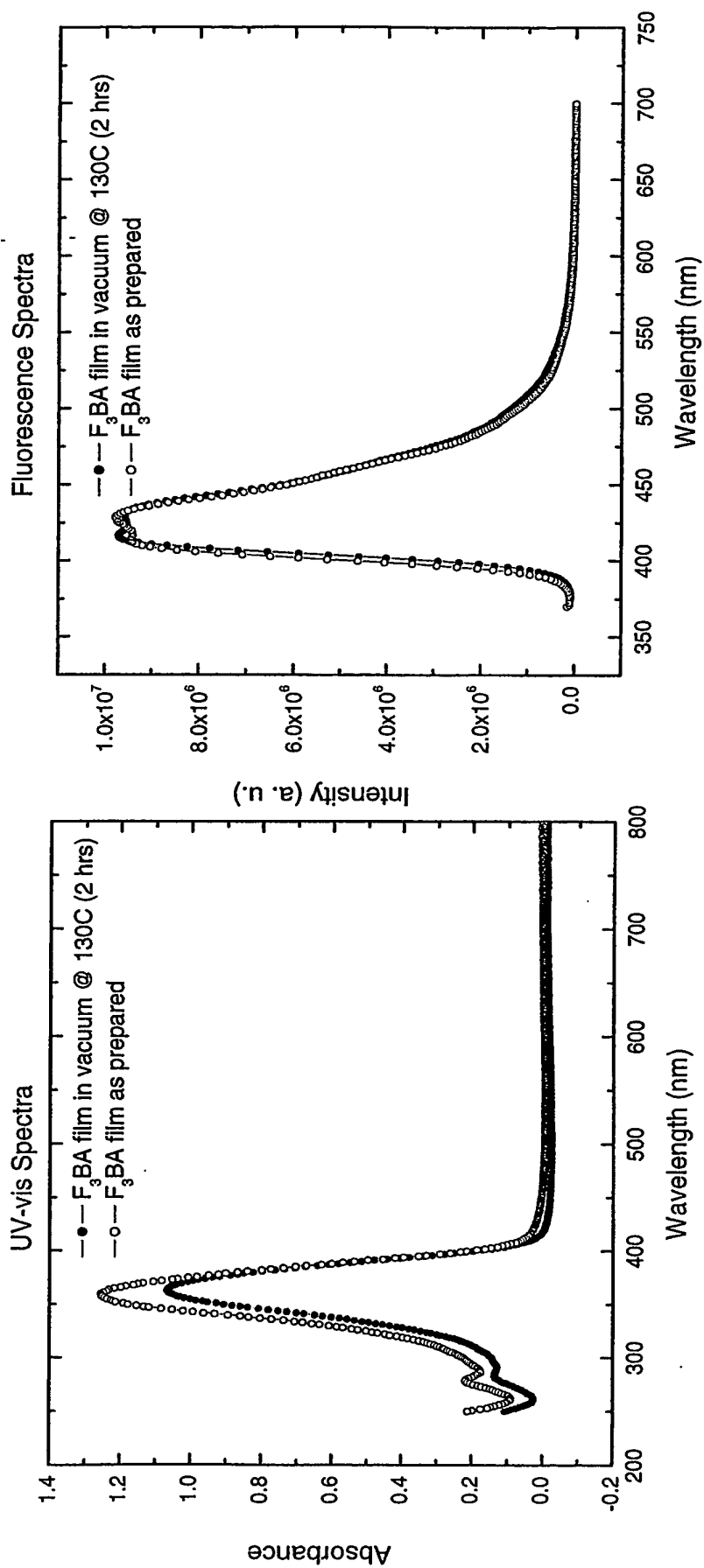


Fig. 3

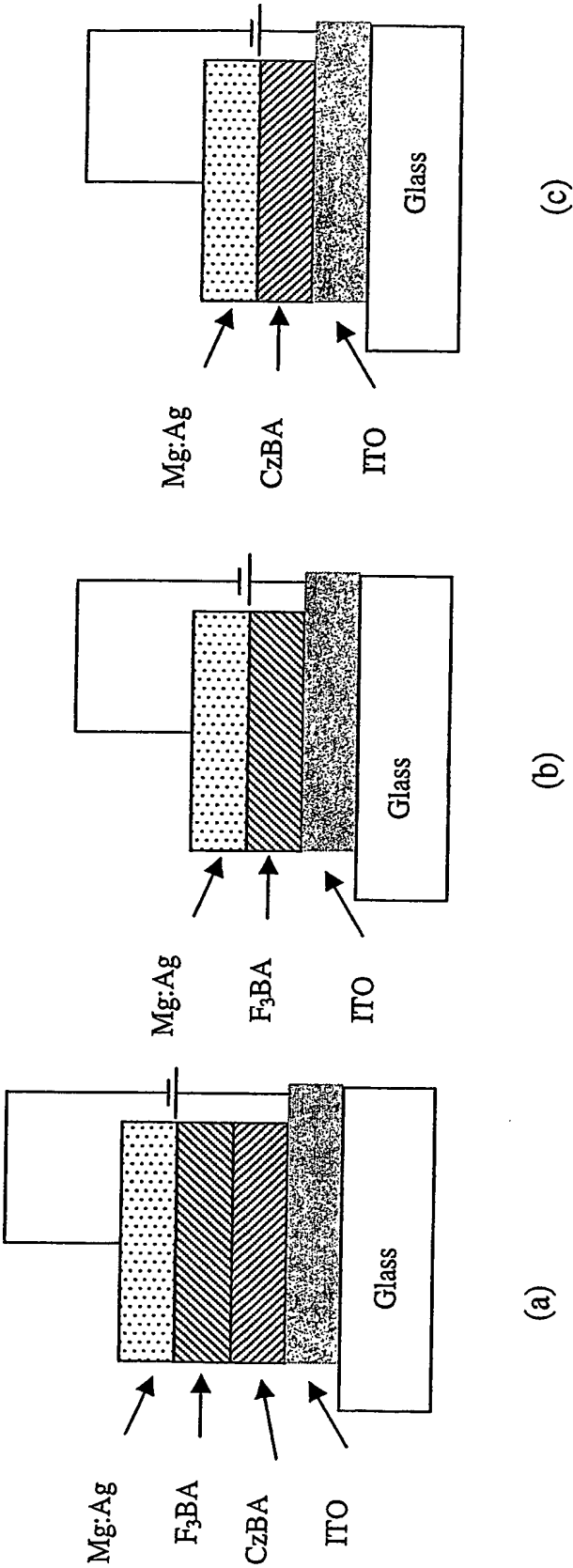


Fig. 4

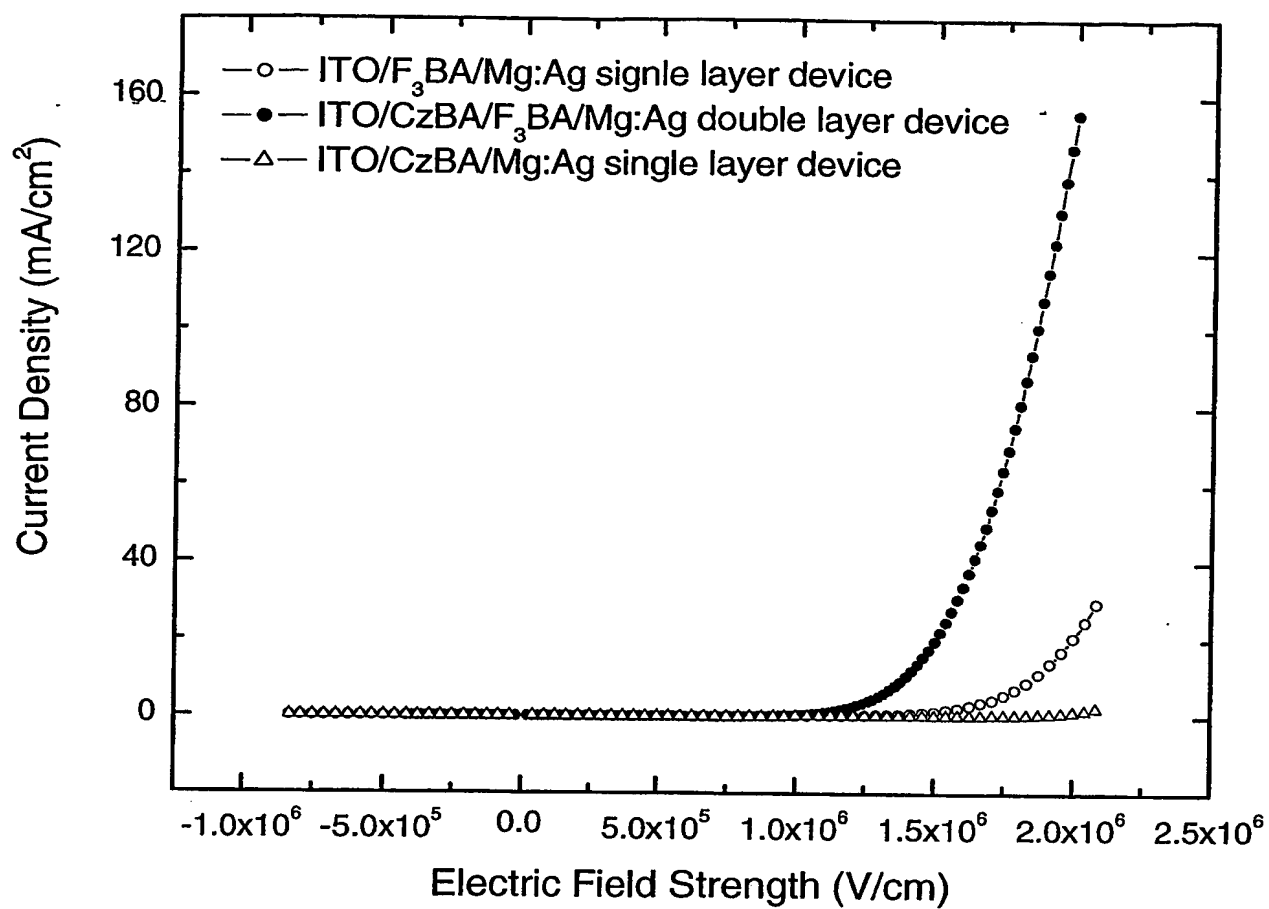


Fig. 5

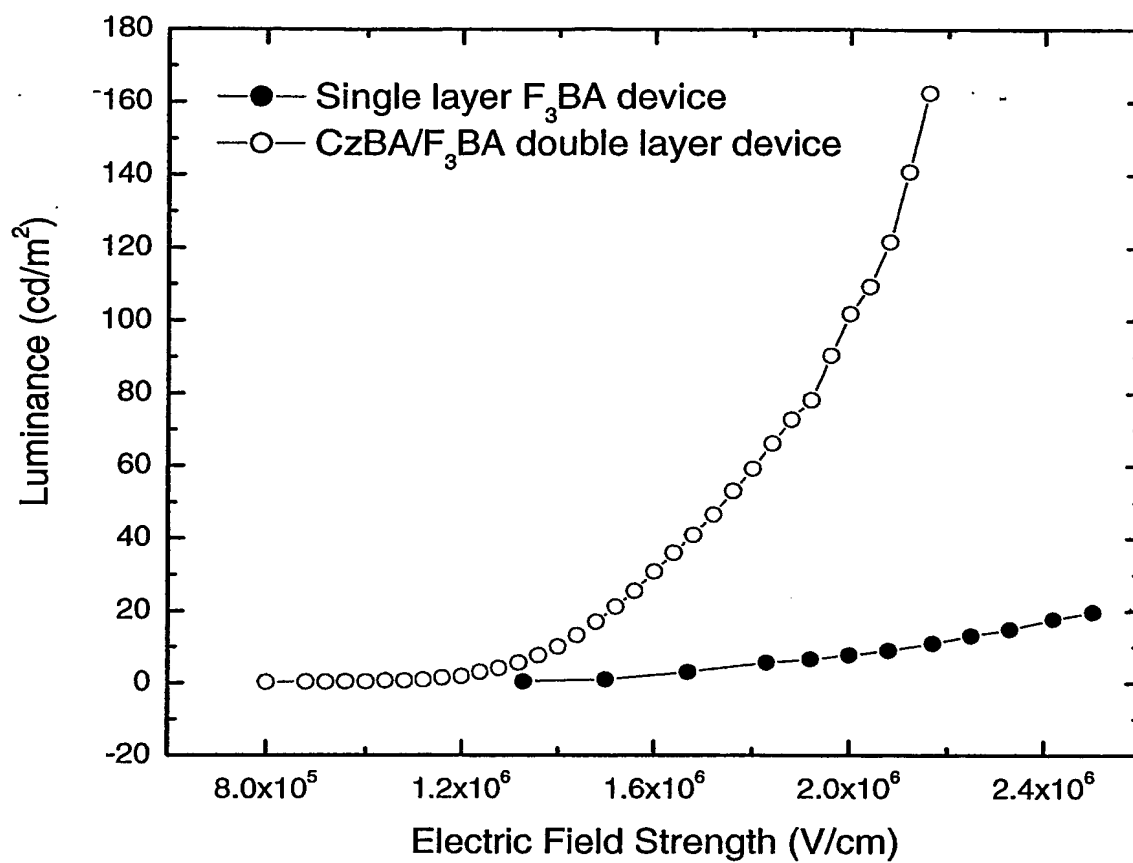


Fig. 6

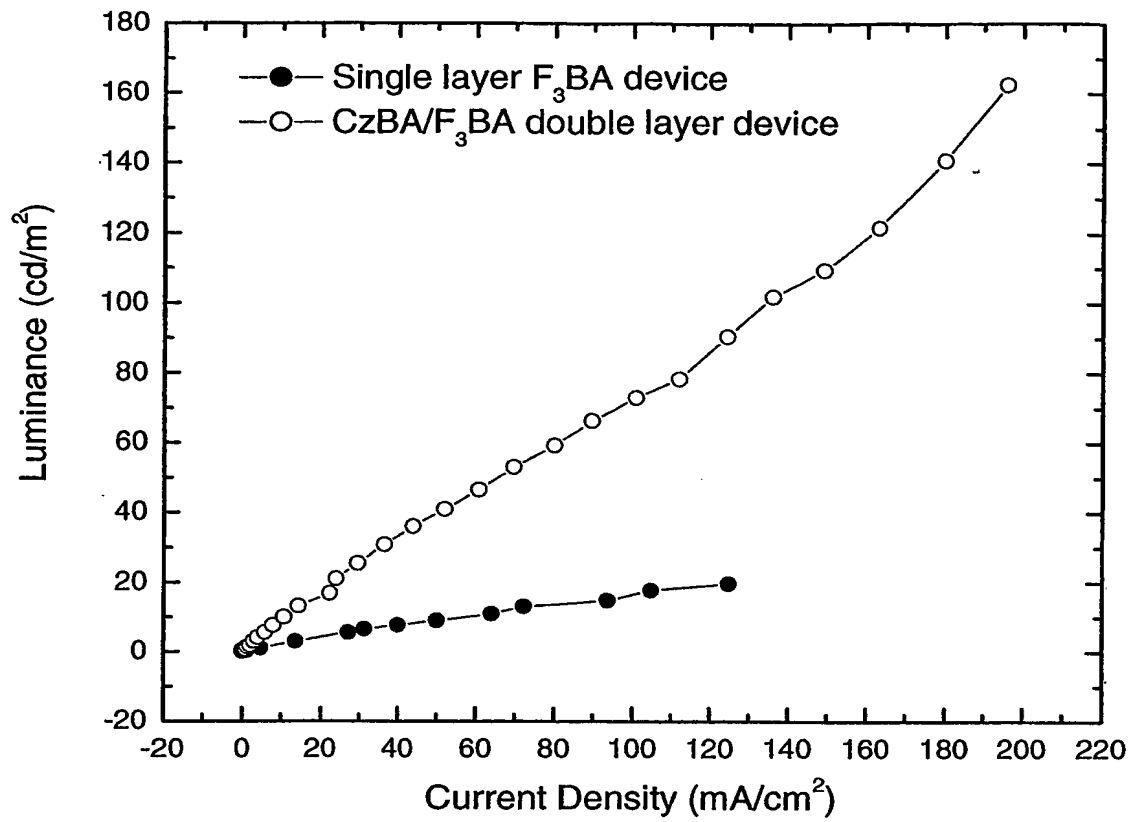


Fig. 7

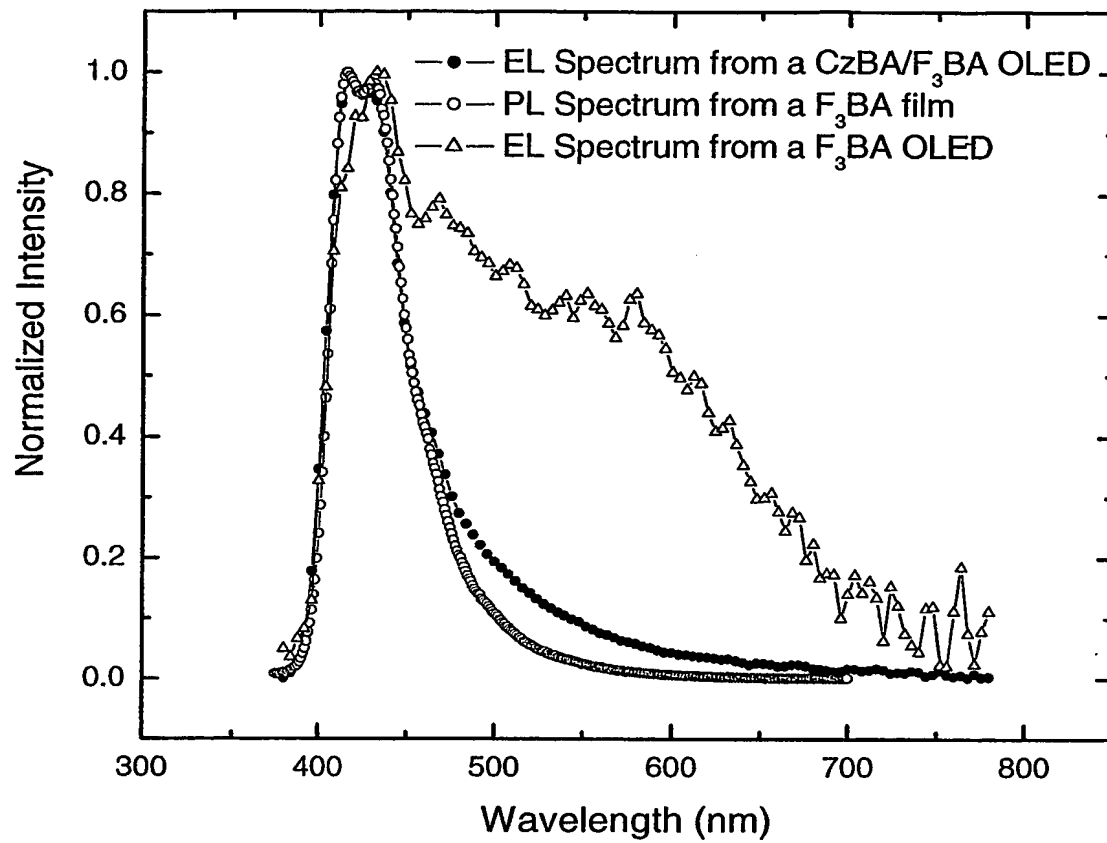


Fig. 8



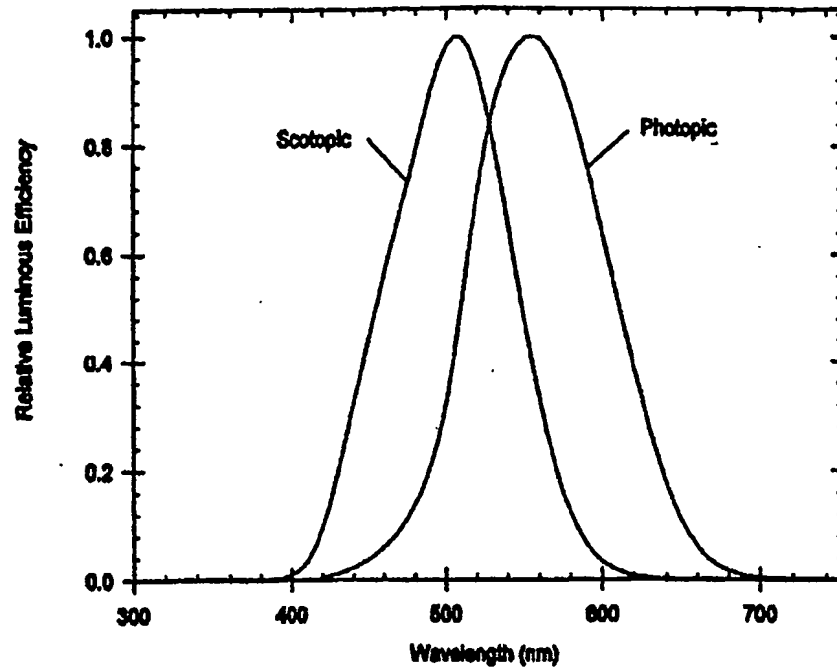
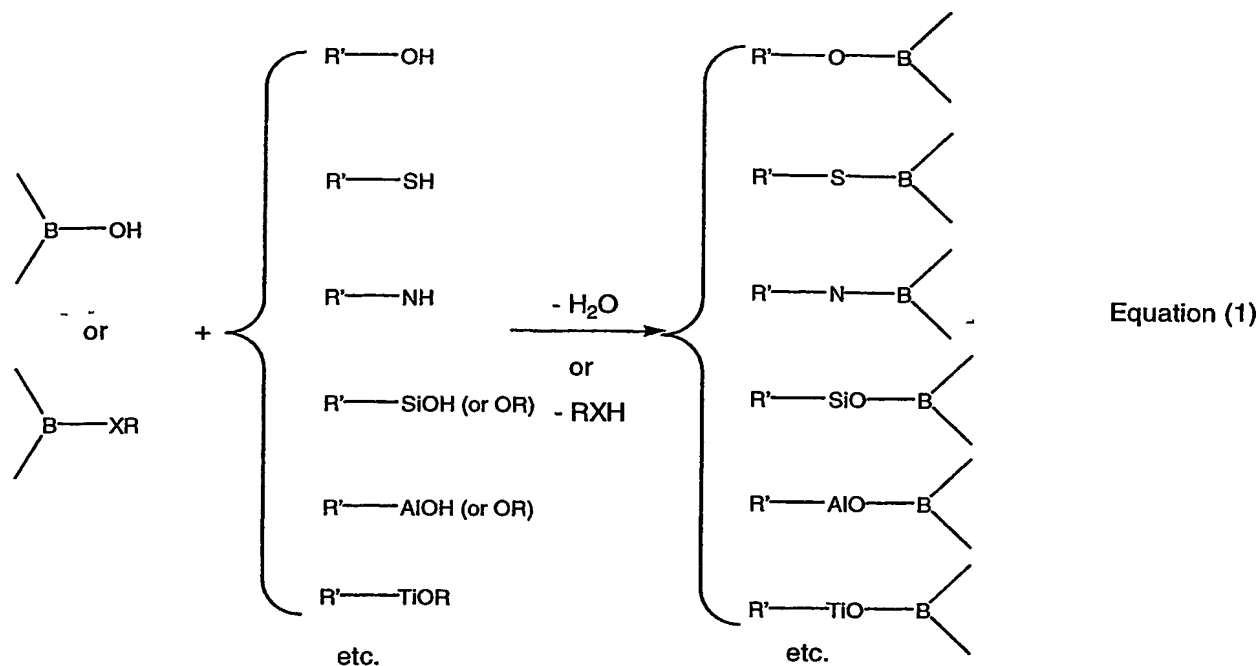
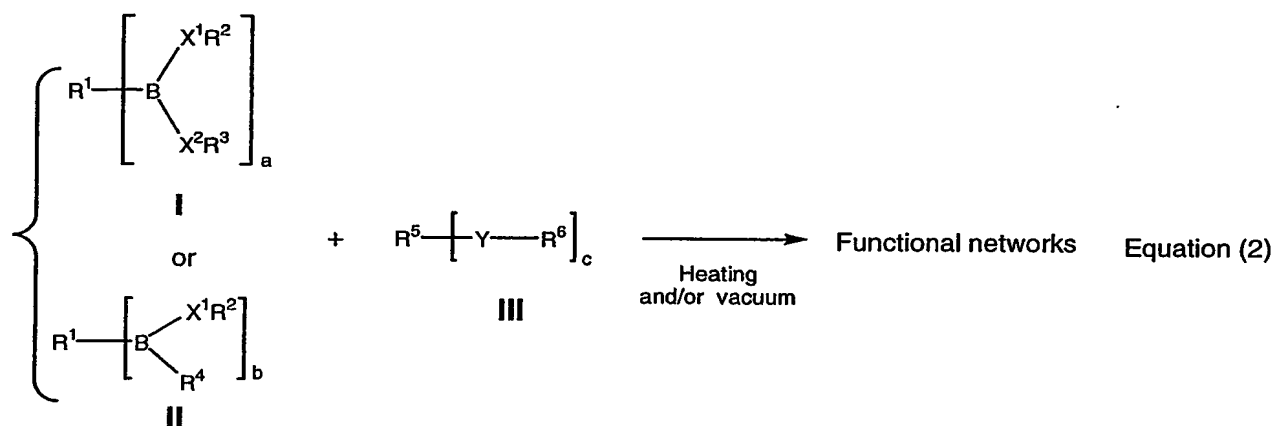


Fig. 9



wherein, X = O, S, N; R and R' = alkyl, aryl, or any other organic and inorganic structures or groups.



wherein,

R<sup>1</sup>, R<sup>4</sup>, and R<sup>5</sup> = alkyl, aryl, or other groups, either organic or inorganic, but at least one of them contains functionality; they can be of small molecular weights or high molecular weights.

R<sup>2</sup>, R<sup>3</sup>, R<sup>6</sup> = H, alkyl, aryl, they may be same or different, but at least one of them is H.

X<sup>1</sup>, X<sup>2</sup> = O, S, or N, they may be same or different.

Y = O, S, N (or NH), SiO, AlO, TiO, etc.

a, b, c are equal to or larger than one, but at least either a (or b) or c is larger than one.

Fig. 10

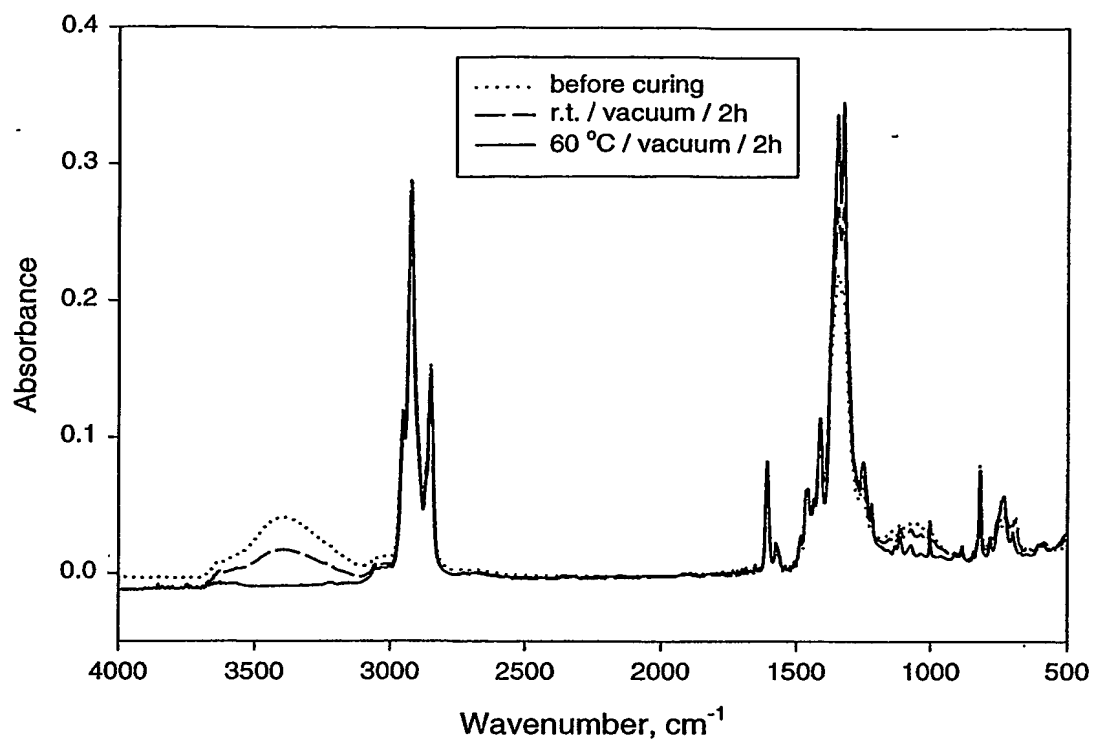


Fig. 11

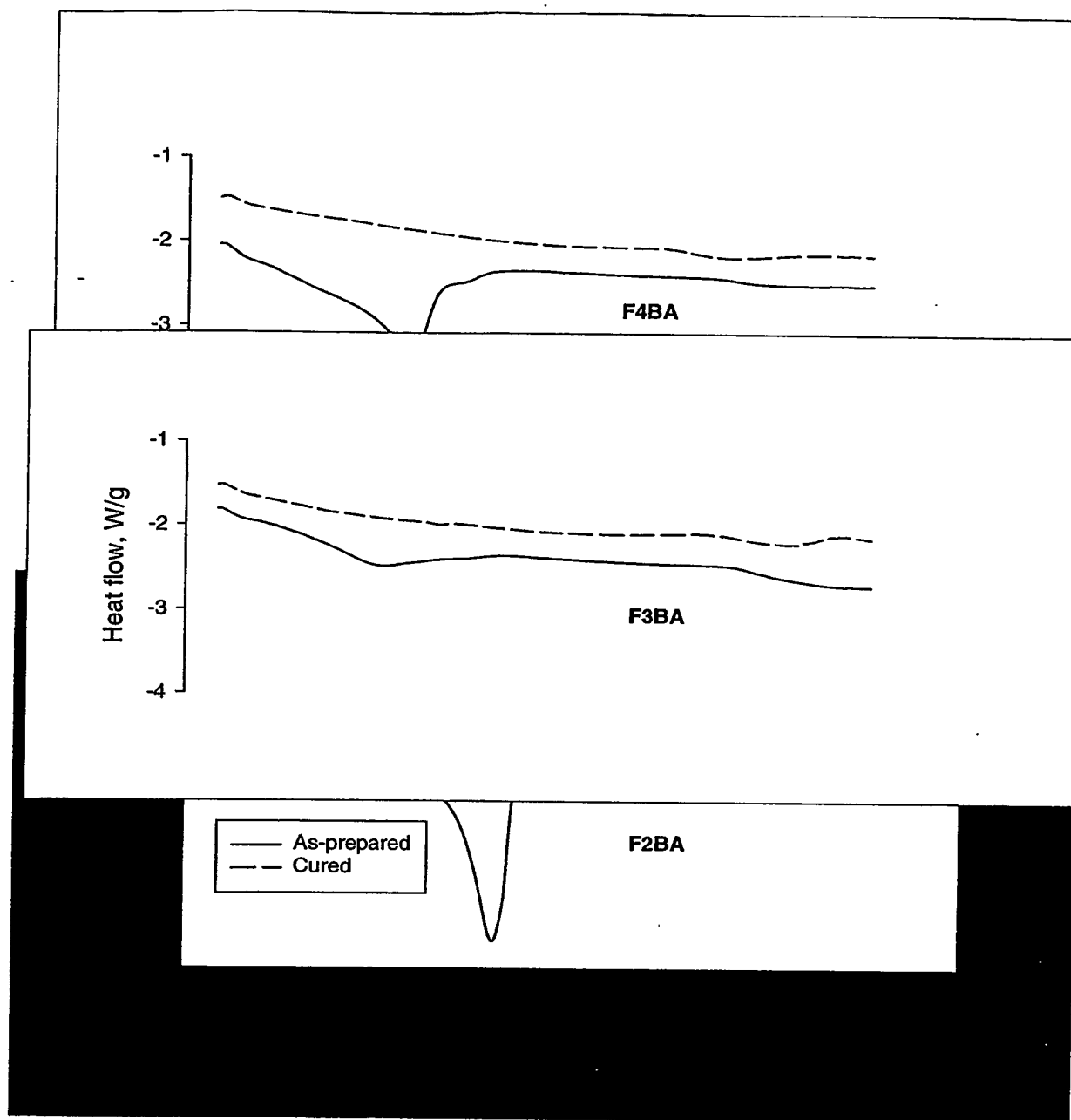


Fig. 12

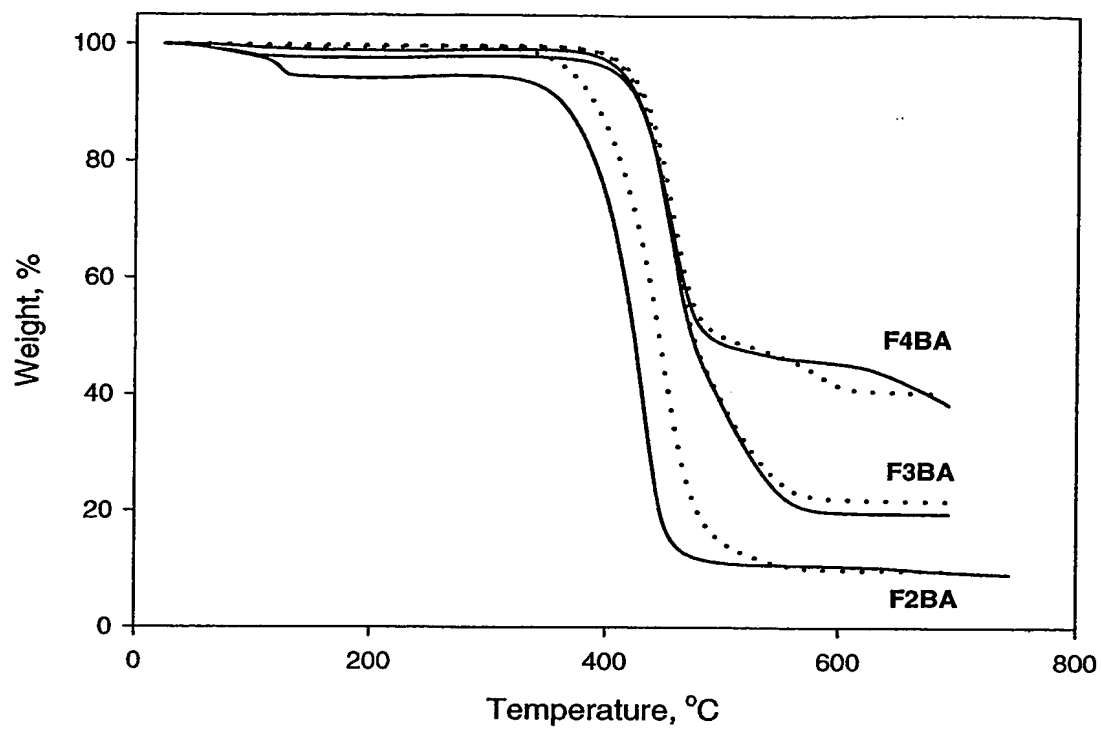


Fig. 13

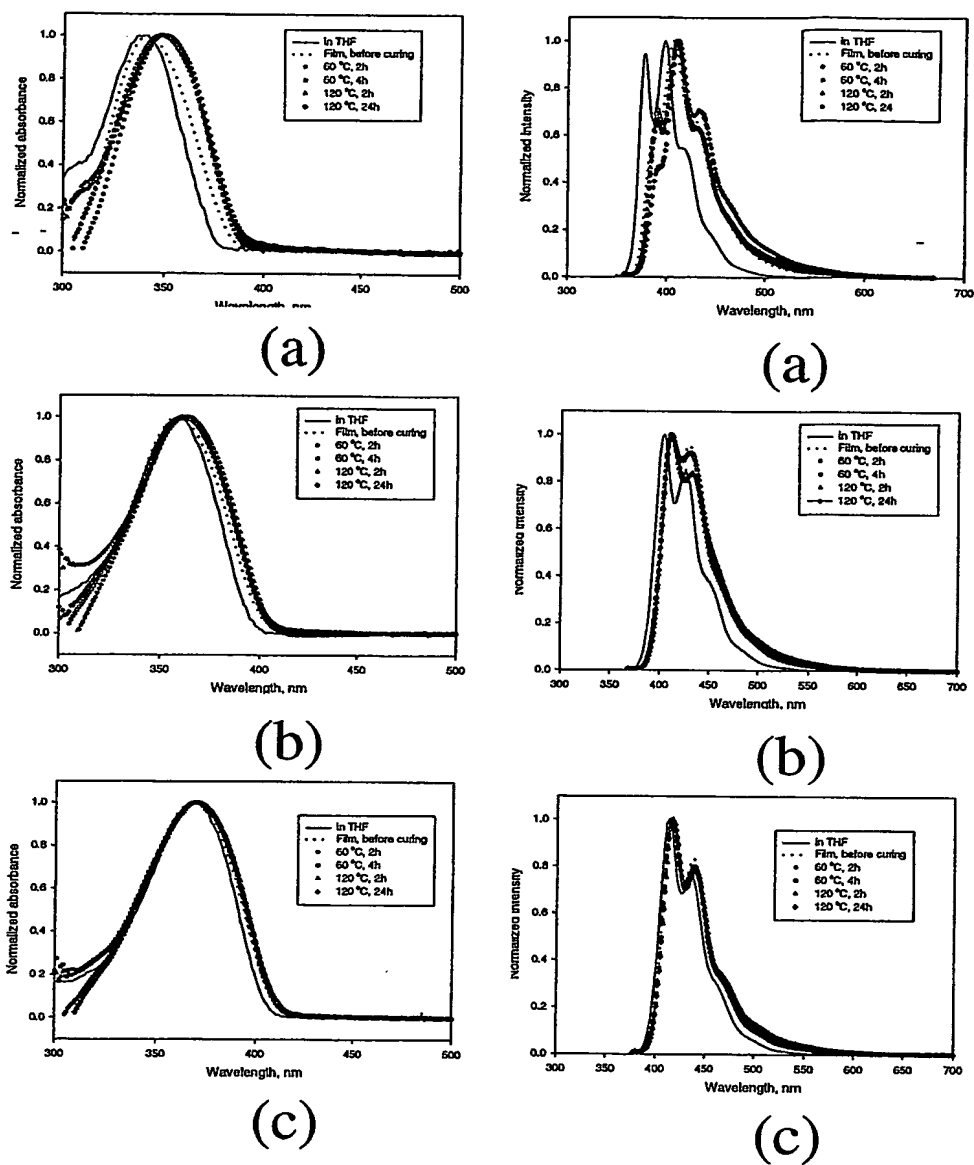


Fig. 14

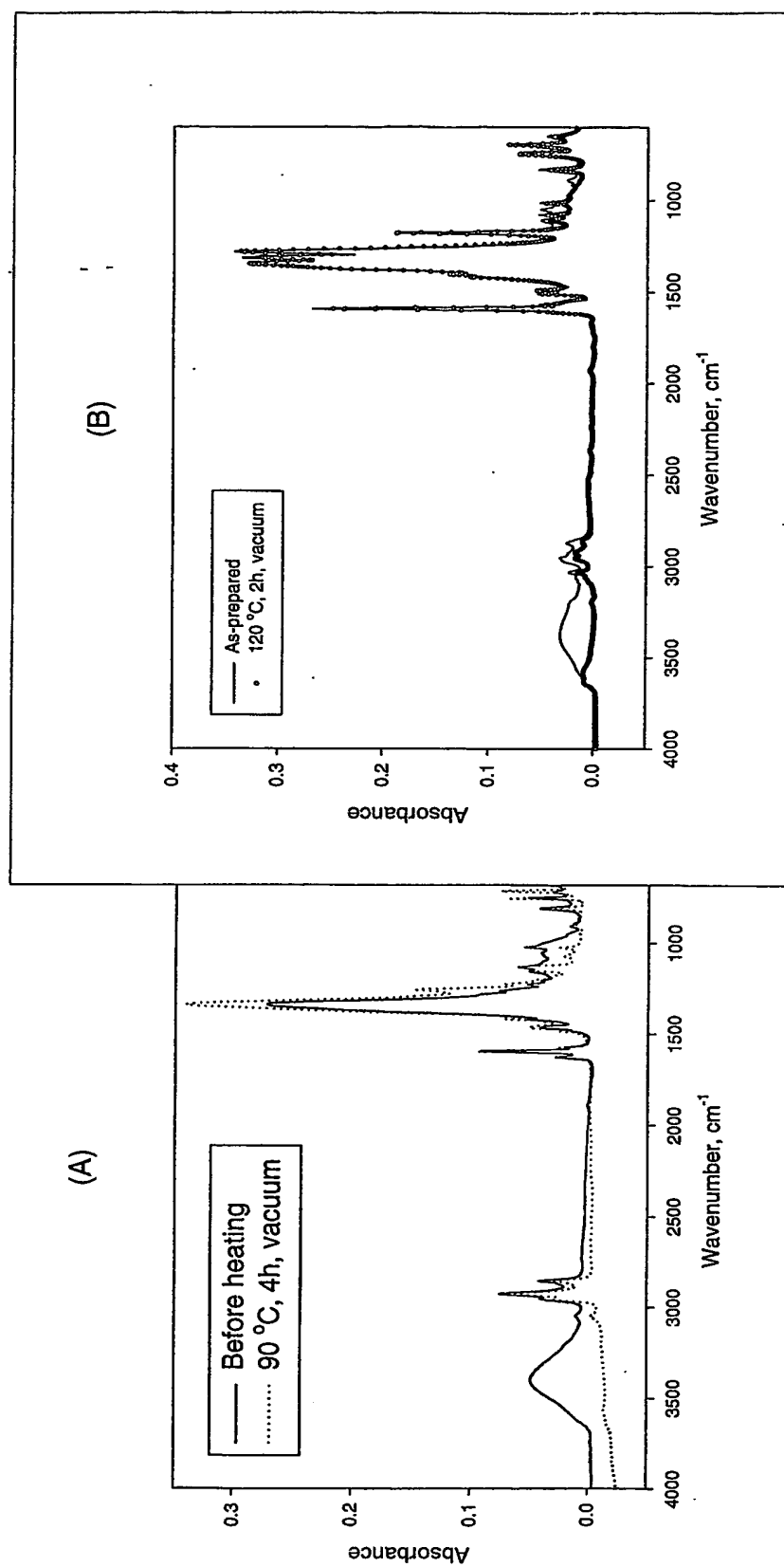


Fig. 15

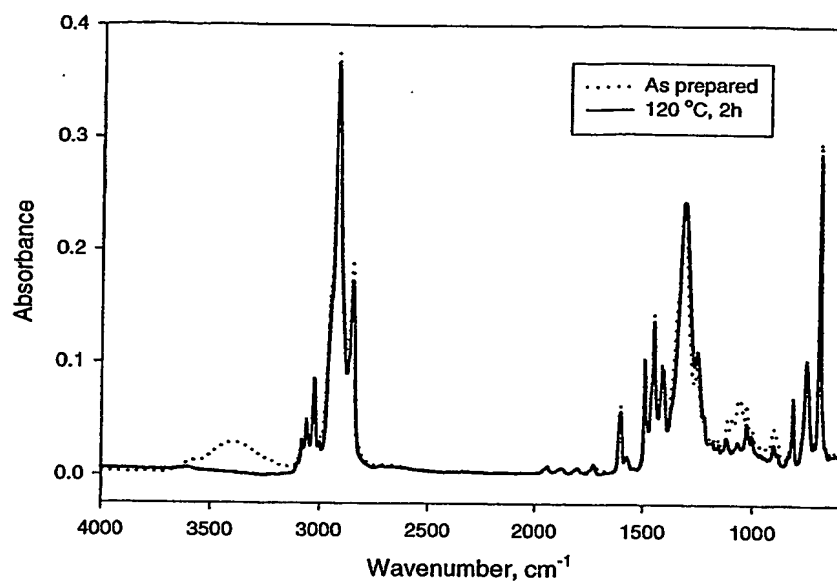


Fig. 16

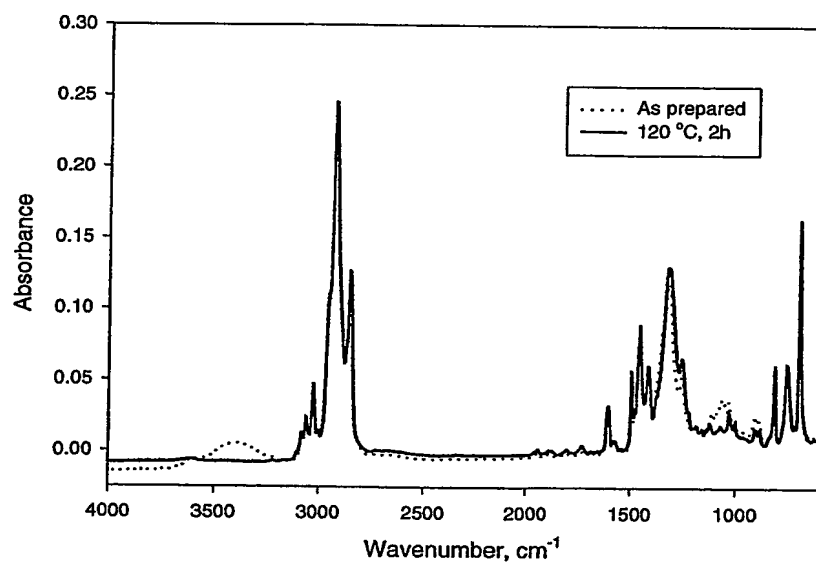


Fig. 17



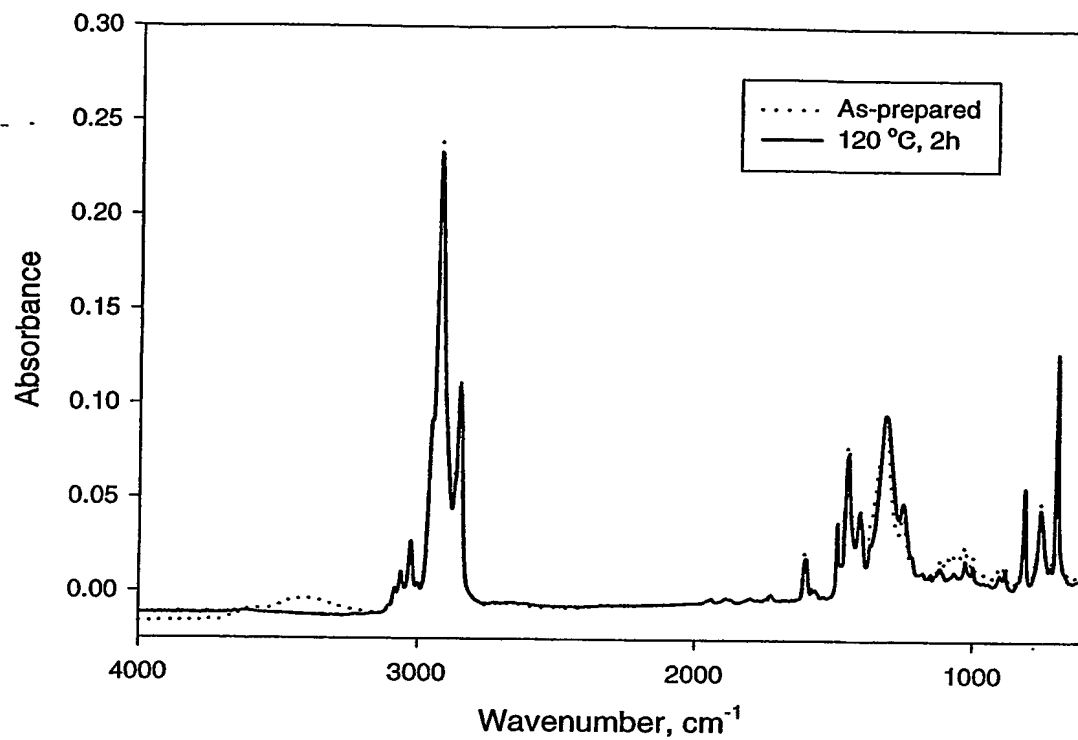


Fig. 18

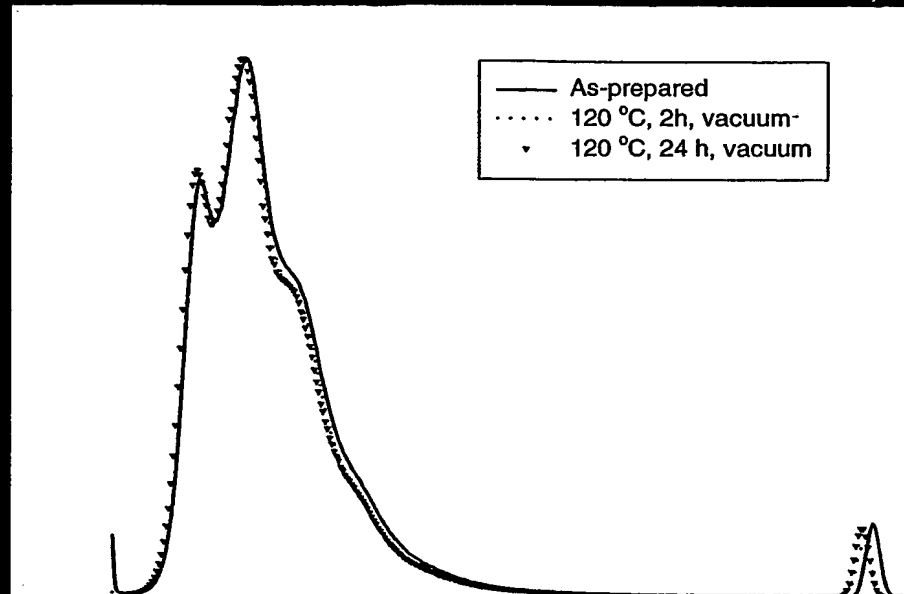


Fig. 19

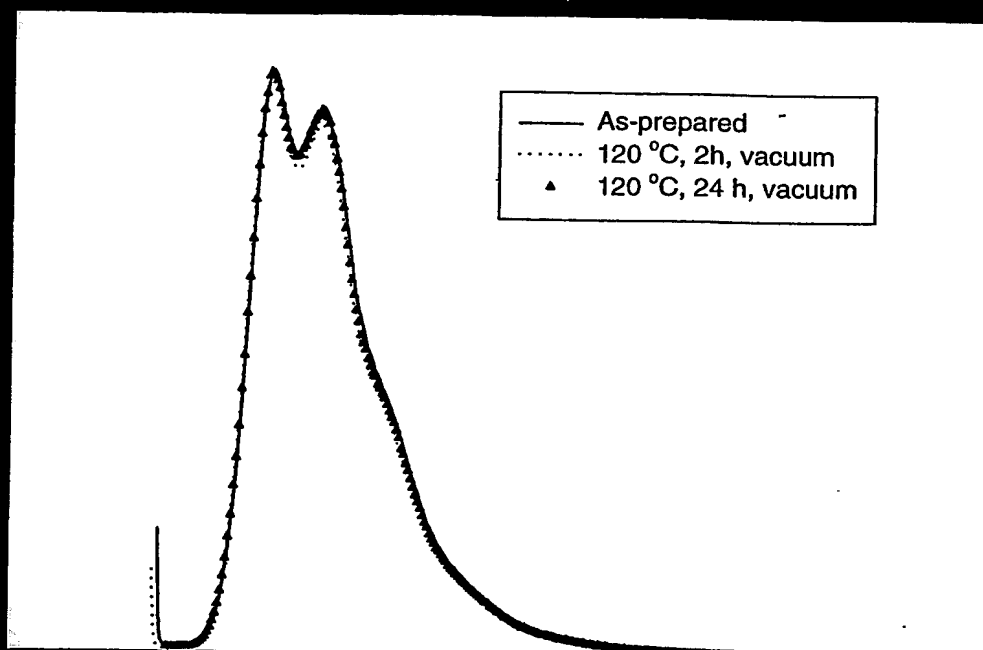


Fig. 20

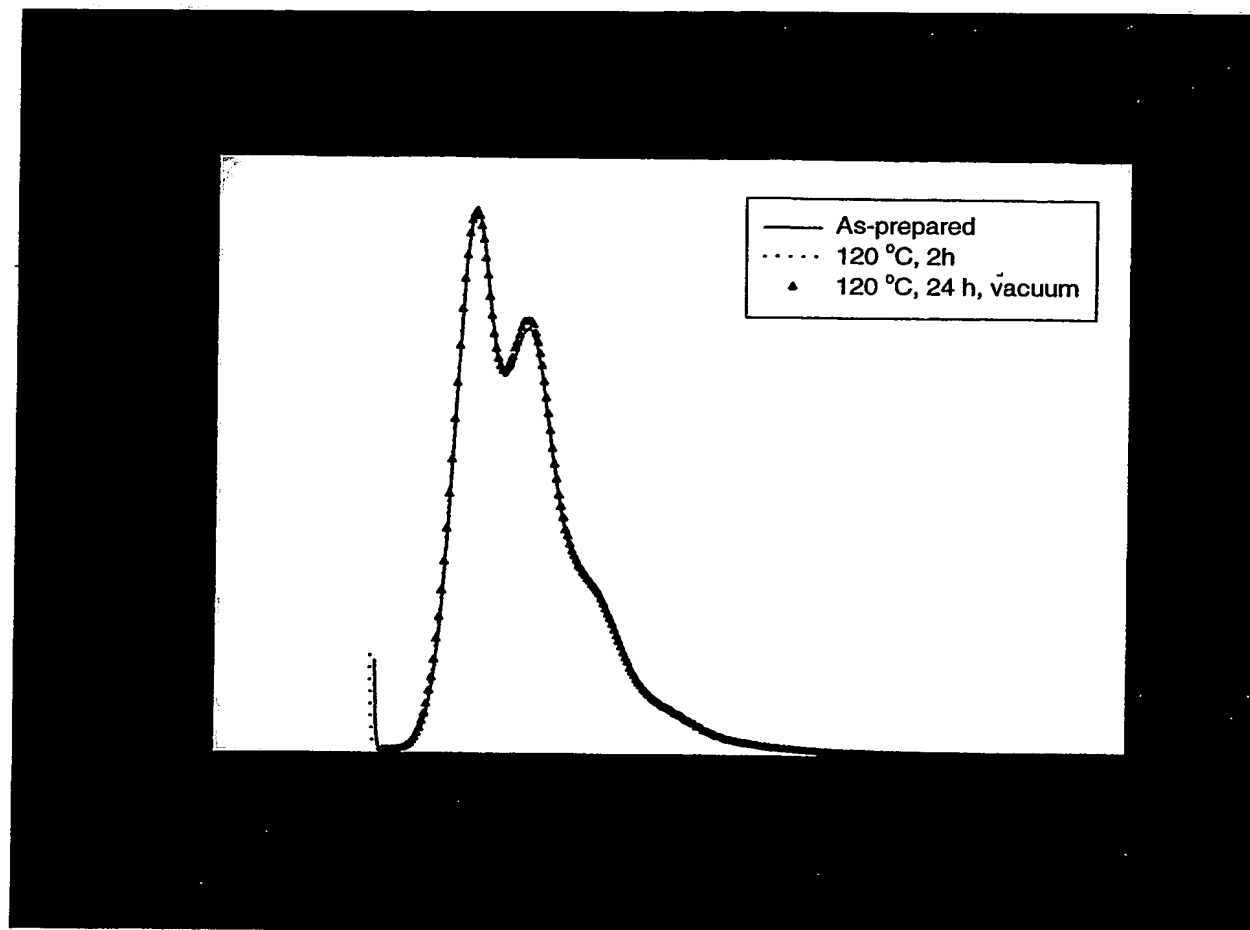


Fig. 21

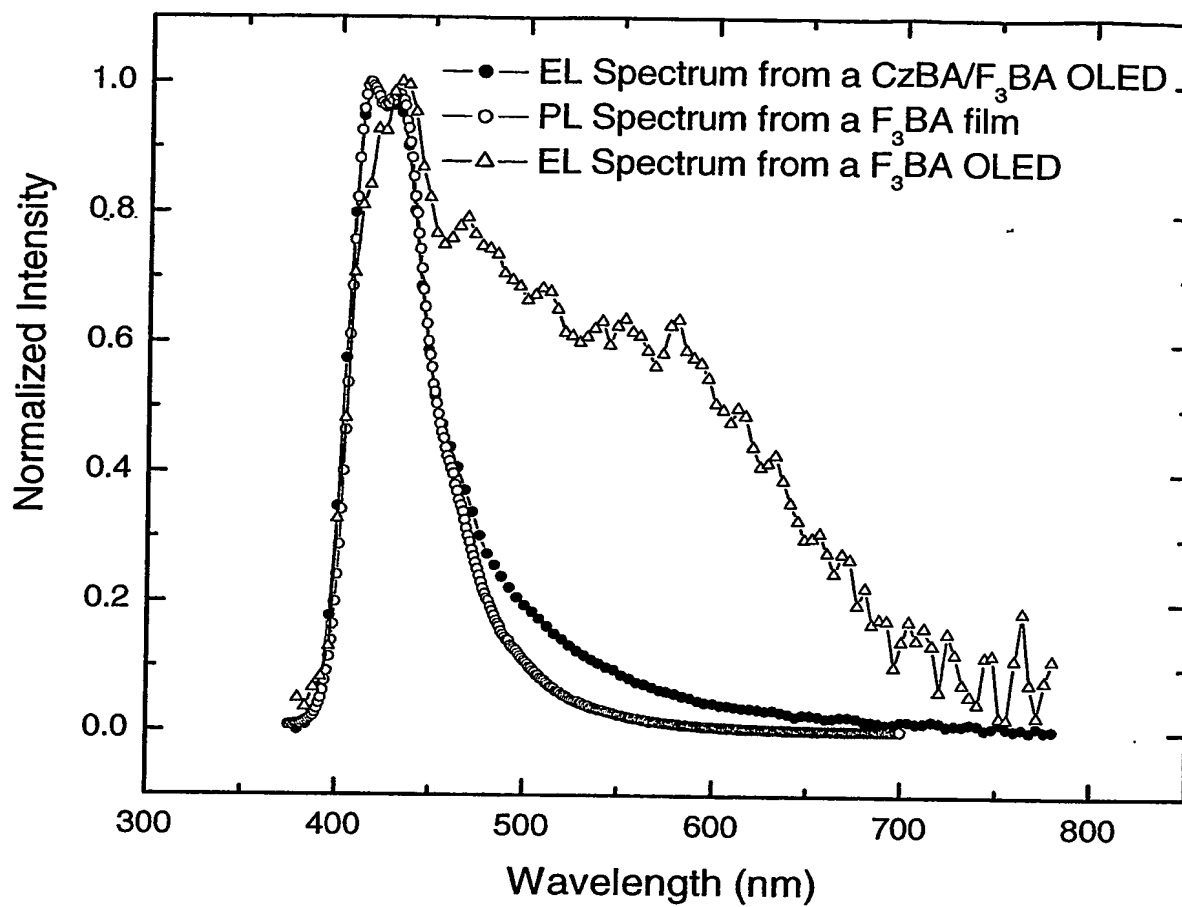


Fig. 22

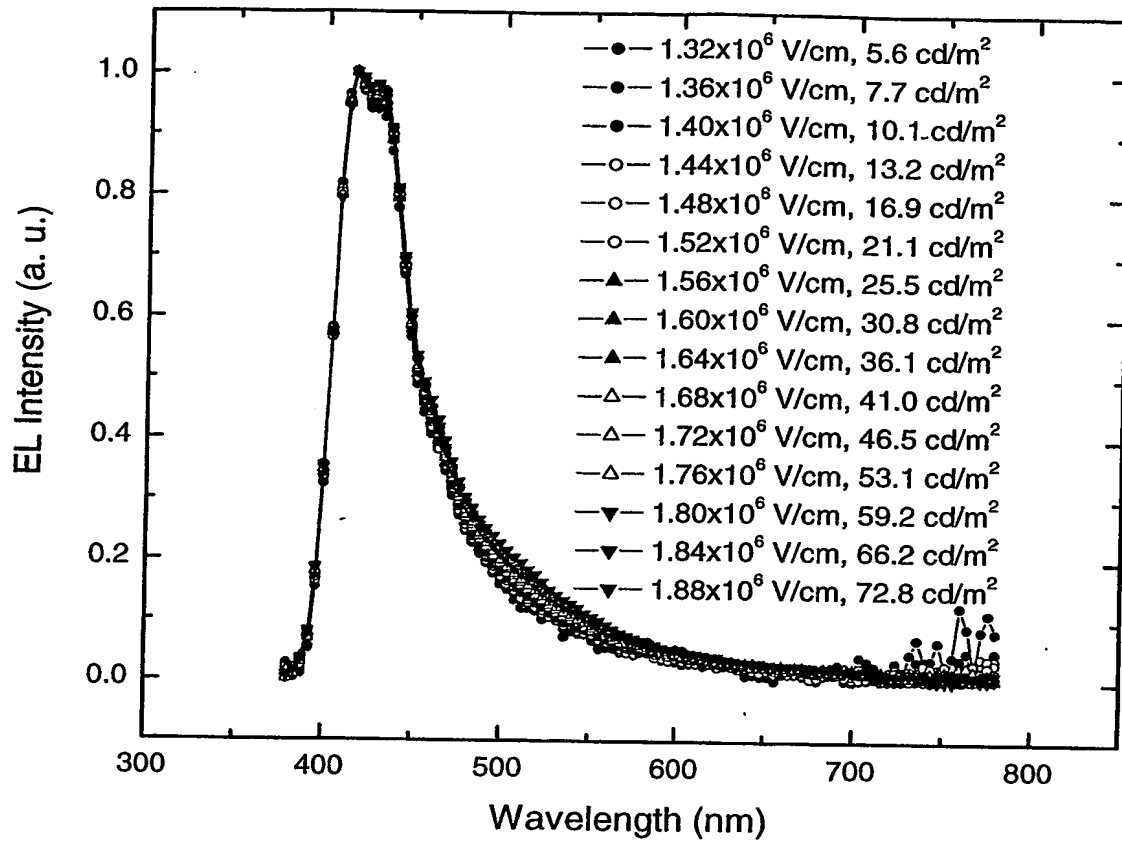


Fig. 23